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ABSTRACT

This paper reports on an examination of the effects of leadership practices on student achievement. It includes a meta-analysis of nearly every available study since the 1970s, including doctoral dissertations, that indicated it examined the effects of leadership on student achievement. From a total of more than 5,000 studies, 70 met the researchers' criteria for design, control, data analysis, and rigor. (Reports on the 70 studies are reference in an appendix.) From the analysis, the researchers have created what they call "a balanced leadership framework." This framework describes the knowledge, skills, strategies, resources, and tools educational leaders need to improve student achievement. The framework is predicated on the notion that effective leadership means more than simply knowing what to do; it means knowing when, how, and why to do it. The data from the meta-analysis demonstrate that there is, in fact, a substantial relationship between leadership and student achievement. (The effect size is discussed and expressed as a correlation.) The paper also contains a listing of 21 specific leadership responsibilities significantly correlated with student achievement. The average effect sizes for their affect on student achievement are also reported. (WFA)

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BALANCED LEADERSHIP

ED 481 972

Balanced Leadership:

What 30 years of research tells us about the effect of leadership on student achievement

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Brian McNulty, Ph.D.

A Working Paper

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BACKGROUND

More than three decades of research on the effects of instruction and schooling on student achievement are creating a new science of education. Starting in 1998, McREL began synthesizing this growing body of research through meta-analyses of research on student characteristics and teacher and school practices associated with school effectiveness. The results of our first two meta-analyses have provided practitioners with specific guidance on the curricular, instructional, and school practices that, when applied appropriately, can result in increased student achievement.

Our third research meta-analysis examines the effects of leadership practices on student achievement. After analyzing studies conducted over a 30-year period, McREL identified 21 leadership responsibilities that are significantly associated with student achievement. We have translated these results into a balanced leadership framework which describes the knowledge, skills, strategies, and tools leaders need to positively impact student achievement.

Why another leadership framework?

Educators have long heard that school leadership makes a difference. Many early studies on school effectiveness, for example, reported that leadership, specifically instructional leadership, was one of several defining characteristics of successful schools. Nonetheless, this notion of instructional leadership remained a vague and imprecise concept for many district and school leaders charged with providing it. Since the early 1970s, many thoughtful, experienced, and competent scholars and practitioners have offered theories, anecdotes, and personal perspectives concerning instructional leadership. None of this advice for leaders, however, was derived from the analysis of a large sample of quantitative data. As a result, it remained largely theoretical and failed to provide school leaders with practical guidance for becoming effective leaders.

In this regard, McREL's balanced leadership framework stands apart from previous advice for school leaders. First, no other frameworks for school leadership have been developed from a more comprehensive analysis of research on school leadership and student achievement. Second, because it is grounded in evidence, our balanced leadership framework moves beyond abstraction to concrete responsibilities, practices, knowledge, strategies, tools, and resources that principals and others need to be effective leaders.

Our leadership framework also is predicated on the notion that effective leadership means more than simply knowing what to do — it's knowing when, how, and why to do it. Effective leaders understand how to balance pushing for change while at the same time, protecting aspects of culture, values, and norms worth preserving. They know which policies, practices, resources, and incentives to align and how to align them with organizational priorities. They know how to gauge the magnitude of change they are calling for and how to tailor their leadership strategies accordingly. Finally, they understand and value the people in the organization. They know when, how, and why to create learning environments that support people, connect them with one another, and provide the knowledge, skills, and resources they need to succeed. This combination of knowledge and skills is the essence of balanced leadership.

Methodology

McREL's balanced leadership framework was developed from three key bodies of knowledge:

- A quantitative analysis of 30 years of research,
- An exhaustive review of theoretical literature on leadership, and
- Our research team's more than 100 years of combined professional wisdom on school leadership.

As a first step in developing our leadership framework, we conducted a systematic meta-analysis of nearly every available study (including doctoral dissertations) that purported to examine the effects of leadership on student achievement reported since the early 1970s. From a total of more than 5,000 studies completed during this period, 70 (see Appendix A) met the following criteria for design, controls, data analysis, and rigor:

- Quantitative student achievement data;
- Student achievement measured on standardized, norm-referenced tests or some other objective measure of achievement;
- Student achievement as the dependent variable; and
- Teacher perceptions of leadership as the independent variable.

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These 70 studies involved 2,894 schools approximately 1.1million students, and 14,000 teachers.

In addition, McREL's research team has applied insights from our own professional wisdom and an exhaustive review of leadership literature — including institutional theory, systems theory, organizational learning theory, transition theory, change theory, and diffusion theory — to help school leaders understand how to effectively carry out the 21 key leadership responsibilities identified in our study. Thus, our findings represent an integration of quantitative research, theoretical insights, and professional wisdom about effective leadership.

FINDINGS

The data from our meta-analysis demonstrate that there is, in fact, a substantial relationship between leadership and student achievement. We found that the average effect size (expressed as a correlation) between leadership and student achievement is .25.

To interpret this correlation, consider two schools (school A & school B) with similar student and teacher populations. Both demonstrate achievement on a standardized, norm-referenced test at the 50th percentile. Principals in both schools are also average — that is, their abilities in the 21 key leadership responsibilities are ranked at the 50th percentile. Now assume that the principal of school B improves her demonstrated abilities in all 21 responsibilities by exactly one standard deviation (see Figure 1).

Our research findings indicate that this increase in leadership ability would translate into mean student achievement at school B that is 10 percentile points higher than school A, as depicted in Figure 2. Expressed differently, a one standard deviation improvement in leadership practices is associated with an increase in average student achievement from the 50th percentile to the 60th percentile. This represents a statistically significant difference in achievement.

In addition to the general impact of leadership, we found 21 specific leadership responsibilities significantly correlated with student achievement. These 21 leadership responsibilities and the average effect size for their impact on student achievement are reported in Figure 3.

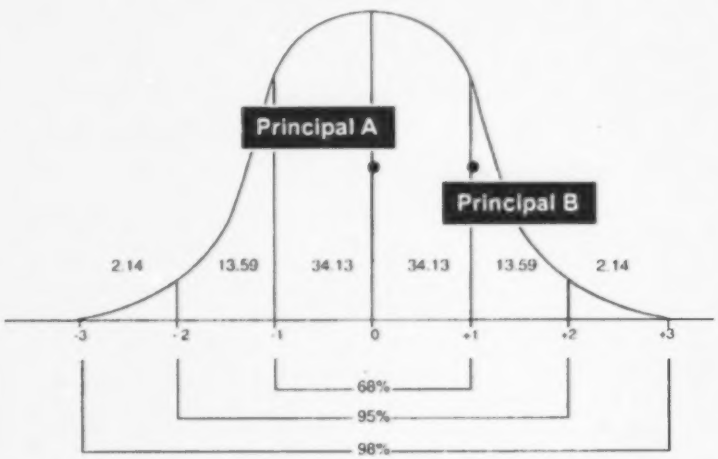

Figure 1: Illustration of one standard deviation difference in principal ability

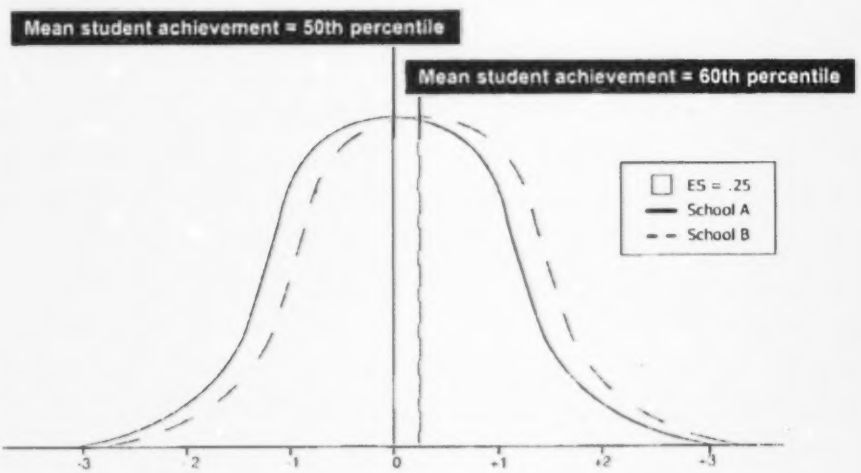

Figure 2: Effect size of leadership on student achievement

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Figure 3: Principal leadership responsibilities: Average r and 95% Confidence Intervals

Responsibilities	*The extent to which the principal ...*	Avg. r	N schools	N studies	95% CI
Culture	fosters shared beliefs & a sense of community & cooperation	.29	709	13	.23-.37
Order	establishes a set of standard operating procedures & routines	.26	456	17	.17-.35
Discipline	protects teachers from issues & influences that would detract from their teaching time or focus	.24	397	10	.14-.33
Resources	provides teachers with materials & professional development necessary for the successful execution of their jobs	.26	570	17	.18-.34
Curriculum, instruction, assessment	is directly involved in the design & implementation of curriculum, instruction, & assessment practices	.16	636	19	.08-.24
Focus	establishes clear goals & keeps those goals in the forefront of the school's attention	.24	1109	30	.18-.29
Knowledge of curriculum, instruction assessment	fosters shared beliefs & a sense of community & cooperation	.24	327	8	.13-.35
Visibility	has quality contact & interactions with teachers & students	.16	432	11	.06-.25
Contingent rewards	recognizes & rewards individual accomplishments	.15	420	7	.05-.24
Communication	establishes strong lines of communication with teachers & among students	.23	245	10	.10-.35
Outreach	is an advocate & spokesperson for the school to all stakeholders	.28	478	14	.19-.35
Input	involves teachers in the design & implementation of important decisions & policies	.30	504	13	.21-.38
Affirmation	recognizes & celebrates school accomplishments & acknowledges failures	.25	345	7	.14-.35
Relationship	demonstrates an awareness of the personal aspects of teachers & staff	.19	497	12	.10-.24
Change agent	is willing to & actively challenges the status quo	.30	479	7	.22-.38
Optimizer	inspires & leads new & challenging innovations	.20	444	9	.11-.29
Ideals/beliefs	communicates & operates from strong ideals & beliefs about schooling	.25	526	8	.17-.33
Monitors/evaluates	monitors the effectiveness of school practices & their impact on student learning	.28	1071	30	.23-.34
Flexibility	adapts leadership behavior to the needs of the current situation & is comfortable with dissent	.22	151	2	.05-.37
Situational awareness	is aware of the details & undercurrents in the running of the school & uses this information to address current & potential problems	.33	91	5	.11-.37
Intellectual stimulation	ensures that faculty & staff are aware of the most current theories & practices & makes the discussion of these a regular aspect of the school's culture	.32	321	5	.22-.42

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Figure 4: Differential impact of leadership

Range	Correlation	Change from 50th P for 1 SD Increase in Leadership
Mean	.25	60th
Highest	.50	69th
Lowest	-.02	49th

The differential impact of leadership

As important as these findings are, there is another finding that is equally as important. That is, just as leaders can have a positive impact on achievement, they also can have a marginal, or worse, a negative impact on achievement. When leaders concentrate on the wrong school and/or classroom practices, or miscalculate the magnitude or "order" of the change they are attempting to implement, they can negatively impact student achievement. Figure 4 displays the range of impact leaders can have on student performance. In some studies, we found an effect size for leadership and achievement of .50. This translates mathematically into a one standard deviation difference in demonstrated leadership ability being associated with as much as a 19 percentile point increase in student achievement — an increase that is substantially larger than the 10 percentile point increase mentioned previously.

In other studies, we found correlations as low as -.02. This indicates that schools where principals demonstrated higher competence in certain leadership areas had lower levels of student achievement. In these studies, a one standard deviation improvement in leadership practices was correlated with a one percentile point decrease in student achievement.

What can we learn from this 20 percentile difference in the impact of leadership? We have concluded there are two primary variables that determine whether or not leadership will have a positive or a negative impact on achievement. The first is the focus of change — that is, whether leaders properly identify and focus on improving the school and classroom practices that are most likely to have a positive impact on student achievement in their school. The second variable is whether leaders properly understand the magnitude or "order" of change they are leading and adjust their leadership practices accordingly. We discuss these variables in greater detail in the following sections.

The focus of change

Harvard scholar Richard Elmore, in a study commissioned by the National Governor's Association (NGA), concluded that having the right focus of change is a key to improving schools and increasing student achievement. In his report for NGA, *Knowing the Right Things to Do: School Improvement and Performance-Based Accountability*, he states,

> Knowing the right thing to do is the central problem of school improvement. Holding schools accountable for their performance depends on having people in schools with the knowledge, skill, and judgement to make the improvements that will increase student performance. (p. 9)

We reached the same conclusion in our current study of leadership. Through two previous studies, we have also identified, "the right things to do" in school improvement. McREL's earlier meta-analyses of classroom and school practices, self-published in reports titled *A Theory-Based Meta-Analysis of Research on Instruction* (1998) and *A New Era of School Reform: What 30 Years of Research Tells Us* (1999)[1], and published by ASCD in two volumes titled *Classroom Instruction that Works* (2000) and *What Works in Schools* (2002), provides guidance for leaders on what the focus of their improvement efforts should be.

[1] **Both McREL research reports are available online:**

- A Theory-based Meta-Analysis of Research on Instruction can be downloaded at www.mcrel.org/PDF/Instruction/5982RR_InstructionMeta_Analysis.pdf;
- A New Era of School Reform is available at w.mcrel.org/PDF/SchoolImprovementReform/5002RR_NewEraSchoolReform.pdf.

Figure 5: School & teacher practices & student factors influencing student achievement

School	1. Guaranteed and viable curriculum 2. Challenging goals and effective feedback 3. Parent and community involvement 4. Safe and orderly environment 5. Collegiality and professionalism
Teacher	6. Instructional strategies 7. Classroom management 8. Classroom curriculum design
Student	9. Home environment 10. Learned intelligence / background knowledge 11. Motivation

The school and classroom practices associated with increased student achievement identified in these publications are presented in Figure 5. For school leaders and leadership teams with questions about where they should be focusing their improvement efforts, these school and teacher practices and student factors offer a place to start.

Just as we are able to document the relationship between leadership and student achievement through our current study, our earlier analyses documented an even stronger relationship between these school and teacher practices and student factors and student achievement. The school and classroom practices in Figure 5 account for 20 percent of the variance in student achievement. This translates mathematically into 72 percent of students passing a standardized assessment that only 50 percent of students are expected to pass. In other words, focusing on the most effective or most needed practices can change a school's passing rate from 50 to 72 percent. Accordingly, the message for leaders is that in order to have positive impact on student achievement, they need to not only focus improvement efforts on these key school and classroom practices, but also accurately understand the magnitude of change implied by these efforts.

The magnitude or "order" of change

The theoretical literature on leadership, change, and the adoption of new ideas (including Heifetz, Fullan, Beckard, Pritchard, Hesslebein, Johnson, Kanter, Bridges, Rogers, Nadler, Shaw, and Walton) makes the case that not all change is of the same magnitude. Some changes have greater implications than others for staff members,students, parents, and other stakeholders. Although there are a variety of labels given to differing magnitudes of change (technical vs. adaptive challenges, incremental vs. fundamental, continuous vs. discontinuous), we have used the terms "first order" and "second order" change to make this distinction. Figure 6 describes the differences between these orders of change.

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Figure 6: Characteristics of first and second order changes

First order change	Second order change
An extension of the past	A break with the past
Within existing paradigms	Outside of existing paradigms
Consistent with prevailing values and norms	Conflicted with prevailing values and norms
Focused	Emergent
Bounded	Unbounded
Incremental	Complex
Linear	Nonlinear
Marginal	A disturbance to every element of a system
Implemented with existing knowledge & skills	Requires new knowledge and skills to implement
Problem- and solution-oriented	Neither problem- nor solution-oriented
Implemented by experts	Implemented by stakeholders

It is important to note that not all changes represent the same order of change for each individual or stakeholder group. What will be experienced as a "first order" change for some may be a "second order" change for others. Assuming that all change will have the same implications for all stakeholders, and/or using practices that might be appropriate for a first order change when a second order change is actually implied for stakeholders, will likely result in a negative impact on student achievement. Thus, in addition to focusing leadership efforts on school and classroom practices associated with improved student achievement, leaders also must tailor their own leadership practices based on the magnitude or "order" of change they are leading.

The implications of the change for individuals, organizations, and institutions determines the magnitude or order of change. On both individual and collective levels, changes that are consistent with existing values and norms, create advantages for individuals or stakeholder groups with similar interests, can be implemented with existing knowledge and resources, and where agreement exists on what changes are needed and on how the changes should be implemented can be considered first order. In an educational context, these might be new classroom instructional practices, instructional materials, curricular programs, or data collection and reporting systems that build on established patterns and utilize existing knowledge.

A change becomes second order when it is not obvious how it will make things better for people with similar interests, it requires individuals or groups of stakeholders to learn new approaches, or it conflicts with prevailing values and norms. To the degree that individuals and/or stakeholder groups in the school or school system hold conflicting values, seek different norms, have different knowledge, or operate with varying mental models of schooling, a proposed change might represent a first order change for some and a second order change for others.

Different perceptions about the implications of change can lead to one person's solution becoming someone else's problem. That is, if a change has first order implications for one person or group of individuals, yet has second order implications for another person or group, this latter group may view the change as a problem rather than a solution. This is true of nearly every educational reform introduced over the last 20 years. The shift from focusing on the inputs of schooling to the outputs of schooling, which was the core concept in "outcome-based" education, is a classic and dramatic example of one person's solution being someone else's problem.

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There are many more current examples. The role and use of content standards, high-stakes testing and accountability, adjustments in school days, weeks, and years, non-graded classrooms, home schooling, and school vouchers are for some educators, policy makers, and parents, first order changes; they are appropriate responses to what these individuals see as problems with schools. These "solutions" are consistent with their prevailing values and norms and are seen as natural extensions of their ongoing efforts to improve schools.

However, other policymakers, educators, and parents may see such changes as dramatic and undesirable breaks with the past, which conflict sharply with their prevailing values and norms. In short, they are viewed as second order changes. That is, instead of being viewed as "solutions," many see them as problems facing schools and school systems, which have far greater implications for students and stakeholder groups than those currently facing the schools.

Recognizing which changes are first and second order for which individuals and stakeholder groups helps leaders to select leadership practices and strategies appropriate for their initiatives. Doing so enhances the likelihood of sustainable initiatives and a positive impact on achievement. Failing to do so will just as likely result in the negative impact on achievement.

Selecting the appropriate leadership practices

Each of the 21 leadership responsibilities presented in Figure 3 includes several different leadership practices. The practices associated with each of the leadership responsibilities are presented in Figure 7. For instructive purposes, these practices have been plotted along a continuum based on whether they are most appropriate for first or second order changes.

In reviewing the figure, readers should keep in mind that while only some of the practices listed here are required to lead first order change, skillful use of all practices listed is required to successfully lead second order change. Effective leaders understand both the order of change they are leading and how to select and skillfully use appropriate leadership practices.

It is also important to note that depending on school context, both first and second order changes can lead to gains in student achievement. However, in many situations, it becomes clear that necessary changes are in fact, "second order" changes. Thus, to be effective, school leaders must become adept at leading both first and second order changes.

As an example, consider the first responsibility listed in Figure 7, Culture (i.e., the extent to which the principal fosters shared beliefs and a sense of community and cooperation). The practices associated with this responsibility include:

1. Promotes cooperation among staff,
2. Promotes a sense of well being,
3. Promotes cohesion among staff,
4. Develops shared understanding of purpose, and
5. Develops a shared vision of what the school could be like.

For first order changes, the first three practices — promoting cooperation, a sense of well being, and cohesion among staff — may be all that is needed from leadership for successful implementation.

However, for second order changes, these first three practices will be insufficient to fulfill this responsibility. Second order changes require leaders to work far more deeply with staff and the community. It is possible that second order changes will disrupt cooperation, a sense of well being, and cohesion. Second order changes may confront group identities, change working relationships, challenge expertise and competencies, and throw people into stages of "conscious incompetence," none of which is conducive to cooperation, cohesion, and a sense of well-being. In these cases, establishing agreement on the purposes of schooling and the proposed changes, along with a truly shared vision of possibilities, will be essential if cooperation among staff, a sense of well being, and cohesion are to be maintained, or re-established, as the change is being implemented.

Figure 7: Leadership practices according to magnitude of change

Leadership Responsibilities & Effect Sizes (ES)	Appropriate for First Order Change → Practices → Appropriate for Second Order Change
Culture (.29) *The extent to which the principal fosters shared beliefs and a sense of community and cooperation.*	• Promotes cooperation among staff • Promotes a sense of well-being • Promotes cohesion among staff • Develops shared understanding of purpose • Develops a shared vision of what the school could be like
Order (.26) *The extent to which the principal establishes a set of standard operating procedures and routines.*	• Provides and enforces clear structures, rules and procedures for students • Provides and enforces clear structures, rules and procedures for staff • Establishes routines regarding the running of the school that staff understand and follow
Discipline (.24) *The extent to which the principal protects teachers from issues and influences that would detract from their teaching time or focus.*	• Protects instructional time from interruptions • Protects/shelters teachers from distraction
Resources (.26) *The extent to which the principal provides teachers with the material and professional development necessary for the successful execution of their jobs.*	• Ensures that teachers have necessary materials and equipment • Ensures that teachers have necessary staff development opportunities that directly enhance their teaching
Curriculum, instruction, assessment (.16) *The extent to which the principal is directly involved in the design and implementation of curriculum, instruction, and assessment practices.*	• Ensures that teachers have necessary materials and equipment • Is involved with teachers to address instructional issues in their classrooms • Is involved with teachers to address assessment issues

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Leadership Responsibilities & Effect Sizes (ES)	Appropriate for First Order Change ← Practices → Appropriate for Second Order Change
Focus (.24) *The extent to which the principal establishes clear goals and keeps those goals in the forefront of the school's attention*	• Establishes concrete goals for all curriculum, instruction, and assessment • Establishes concrete goals for the general functioning of the school • Continually keeps attention on established goals • Establishes high, concrete goals and expectations that all students meet them
Knowledge of curriculum, instruction, assessment (.24) *The extent to which the principal is knowledgeable about current curriculum, instruction, and assessment practices.*	• Is knowledgeable about instructional practices • Is knowledgeable about assessment practices • Provides conceptual guidance for teachers regarding effective classroom practice
Visibility (.16) *The extent to which the principal has quality contact and interactions with teachers and students.*	• Makes systematic and frequent visits to classrooms • Maintains high visibility around the school • Has frequent contact with students
Contingent Rewards (.15) *The extent to which the principal recognizes and rewards individual accomplishments.*	• Recognizes individuals who excel • Uses performance vs. seniority as the primary criterion for reward and advancement • Uses hard work and results as the basis for reward and recognition
Communication (.23) *The extent to which the principal establishes strong lines of communication with teachers and among students.*	• Is easily accessible to teachers • Develops effective means for teachers to communicate with one another • Maintains open and effective lines of communication with staff.
Outreach (.28) *The extent to which the principal is an advocate and spokesperson for the school to all stakeholders.*	• Assures that the school is in compliance with district and state mandates • Advocates on behalf of the school in the community • Advocates for the school with parents of the students • Ensures that the central office is aware of the school's accomplishments

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Leadership Responsibilities & Effect Sizes (ES)	Appropriate for First Order Change ← Practices → Appropriate for Second Order Change
Input (.30) *The extent to which the principal involves teachers in the design and implementation of important decisions and policies.*	• Provides opportunity for input on all important decisions • Provides opportunities for staff to be involved in developing school policies • Uses a leadership team in decision making
Affirmation (.25) *The extent to which the principal recognizes and celebrates school accomplishments and acknowledges failures.*	• Systematically and fairly recognizes and celebrates accomplishments of teachers • Systematically and fairly recognizes and celebrates accomplishments of students • Systematically acknowledges failures and celebrates accomplishment of the school
Relationships (.19) *The extent to which the principal demonstrates an awareness of the personal aspects of teachers and staff.*	• Remains aware of personal needs of teachers • Maintains personal relationships with teachers • Is informed about significant personal issues within lives of staff • Acknowledges significant events in the lives of staff
Change agent (.30) *The extent to which the principal is willing to and actively challenges the status quo.*	• Consciously challenges the status quo • Is comfortable leading change initiatives with uncertain outcomes • Systematically considers new and better ways of doing things
Optimizer (.20) *The extent to which the principal inspires and leads new and challenging innovations.*	• Inspires teachers to accomplish things that might seem beyond their grasp • Portrays a positive attitude about the ability of the staff to accomplish substantial things • Is a driving force behind major initiatives

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Leadership Responsibilities & Effect Sizes (ES)	Appropriate for First Order Change ← Practices → Appropriate for Second Order Change
Ideals/beliefs (.25) *The extent to which the principal communicates and operates from strong ideals and beliefs about schooling.*	• Shares beliefs about schooling, teachers, and learning with staff and parents • Demonstrates behaviors that are consistent with beliefs • Holds strong professional beliefs about schools, teaching, and learning
Monitors/evaluates (.28) *The extent to which the principal monitors the effectiveness of school practices and their impact on student learning.*	• Monitors and evaluates the effectiveness of curriculum, instruction, and assessment
Flexibility (.22) *The extent to which the principal adapts his or her leadership behavior to the needs of the current situation and is comfortable with dissent.*	• Is comfortable with major changes in how things are done • Encourages people to express opinions contrary to those of authority • Adapts leadership style to needs of specific situations • Can be directive or non directive as the situation warrants
Situational awareness (.33) *The extent to which the principal is aware of the details and undercurrents in the running of the school and uses this information to address current and potential problems.*	• Is aware of informal groups and relationships among staff of the school • Is aware of issues in the school that have not surfaced but could create discord • Can predict what could go wrong from day to day
Intellectual stimulation (.32) *The extent to which the principal ensures that faculty and staff are aware of the most current theories and practices and makes the discussion of these a regular aspect of the school's culture.*	• Keeps informed about current research and theory regarding effective schooling • Continuously involves staff in reading articles and books about effective practices • Continually exposes staff to cutting edge ideas about how to be effective • Systematically engages staff in discussions about current research and theory

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Ongoing development of McREL's "balanced leadership" framework

Our work on this framework continues through the development of a "knowledge taxonomy" to organize the theoretical research mentioned earlier in this paper. Our taxonomy organizes this literature into the following four types of knowledge, which can be applied to the 21 leadership responsibilities and associated practices:

- Experiential knowledge — knowing why this is important;
- Declarative knowledge — knowing what to do;
- Procedural knowledge — knowing how to do it; and
- Contextual knowledge — knowing when to do it.

The value of the taxonomy, we believe, is in organizing the knowledge in the theoretical research on leadership, change, systems, organizational learning, diffusion, supervision, and institutions so it can be applied to the 21 leadership responsibilities. Based on our review of the theoretical research in these domains, it is clear that many people in leadership positions lack the experiential, declarative, procedural, and/or contextual knowledge necessary to lead both first and second order change. The literature is replete with examples of bright, powerful, well intentioned leaders who fail in their leadership initiatives because they simply did not understand what they needed to know, how to proceed with implementation, or when they needed to use various practices and strategies.

Nowhere may this be more true than in the field of educational leadership. For years, educators have worked to apply theories from these domains to schools and school systems. However, there has been no consistent approach to and structure for this application. We are using the knowledge taxonomy as the tool for this purpose.

The meta-analysis gives us 21 research-based responsibilities and associated practices that are significantly associated with student achievement. These responsibilities and practices make up one half of a "balanced leadership framework." The taxonomy is our tool for organizing the experiential, declarative, procedural, and contextual knowledge in the theoretical research, to be applied to the 21 responsibilities and associated practices found in the quantitative research. This is the other half of the "balanced leadership framework."

Again selecting one of the leadership responsibilities, Communication (i.e., the extent to which the principal establishes strong lines of communication with teachers and among staff), Figure 8 is a partially developed example of how the taxonomy will be used to further develop this work.

In addition to pulling the theoretical research into the framework using the knowledge taxonomy, we continue to collect data on the 21 leadership responsibilities. Assuming that the 21 responsibilities are highly interrelated, we are currently collecting data from practitioners which we will use to conduct factor analyses. Additionally, we will use these data for the purpose of structural equation modeling. In subsequent reports, we anticipate sharing the results of our factor analyses, which we expect will produce a smaller number of responsibilities after "teasing out" the underlying factor structure. Furthermore, we expect to report on the strength of relationships between leadership responsibilities and practices to the school and classroom practices presented in Figure 5. For information about the status of these efforts, and the release of future reports, readers can access McREL's Resource Center at info@mcrel.org.

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Figure 8: Example of the knowledge taxonomy

Responsibility	Knowledge & Skills	Strategy & Tools	Resources
Communication (ES .23) Establish effective lines of communication to and from staff	**Experiential** (why) People adopt ideas or innovations partially based on the effectiveness of communication channels (i.e., who they hear it from, what they learn, and how they hear it.)	**Defining consequences** • Desirable vs. undesirable • Direct vs. indirect • Anticipated vs. unanticipated	Diffusion of Innovations, 4th Ed. (1995) Everett M. Rogers
	Declarative (what) Leaders need to know the attributes of innovations, i.e. • Relative advantage • Compatibility • Complexity • Trialability • Observability and how these attributes affect the rate of adoption.	Manage disequilibrium Increase access to • Information • Innovation evaluations • Resource utilization • Using the categories of adopters	
	Procedural (how) Leaders need to effectively use the channels of communication to capitalize on the research on the adoption of ideas/innovations. They need to use: • Knowledge • Persuasion • Decisions • Implementation • Confirmation	Develop network of key communicators Identify and brief opinion leaders Ethnographic studies Metaphors Reframing Use of dialogue	
	Contextual (when) Whenever people are being asked to adopt new practices, leadership needs to assess both the readiness for change and the level of that change.	Assess magnitude of leadership initiative	McREL change initiative assessment protocol

CONCLUSION

There are no fail-safe solutions to educational and organizational problems. This is as true in the area of leadership as it is in other areas of educational effectiveness. However, research findings that are organized, accessible, and easily applied by practitioners can enhance the likelihood of effective education leadership. We believe the McREL balanced leadership framework is the most comprehensive, rigorous, and useful integration of research and theory into a practical format available to education leaders today. McREL's framework is not a silver bullet. It can become, however, a tool that will help leaders and leadership teams add value to the work of all stakeholders to improve student achievement.

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APPENDIX A: REPORTS ON THE 70 STUDIES INCLUDED IN THE MCREL LEADERSHIP META-ANALYSIS

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